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SITE NAME	RIVERDALE CHEMICAL CO
DOC ID #	151878
DOCUMENT VARIATION	___ COLOR **OR** _X_ RESOLUTION
PRP	RMD - RIVERDALE CHEMICAL CO
PHASE	AR
OPERABLE UNITS	
PHASE (AR DOCUMENTS ONLY)	___ Remedial ___ Removal ___ Deletion Docket ___ _X_ Original ___ Update # ___ Volume _2_ of _2_
COMMENT(S)	

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

151878

00000012

AUG 17 2001

REPLY TO THE ATTENTION OF SE-5J

MEMORANDUM

DATE:

SUBJECT: **ACTION MEMORANDUM:** Determination of Threat to Public Health and the Environment at the Riverdale Chemical Company, Chicago Heights, Cook County, Illinois (Site ID# 05K2)

FROM: Callie Bolattino, On Scene Coordinator
Emergency Response Section II

TO: William E. Muno, Director
Superfund Division

THRU: Richard C. Karl, Chief
Emergency Response Branch

I. PURPOSE

The purpose of this Memorandum is to document the determination of an imminent and substantial threat to public health and the environment posed by the presence of elevated levels of 2, 3, 7, 8 tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) and pesticides in the soil located at the Riverdale-Nufarm Chemical Company ("the site") in Chicago Heights, Cook County, Illinois. The contamination on the property is the result of historical poor housekeeping and product management practices.

The Potentially Responsible Party (PRP), Riverdale Chemical Company (Riverdale), has agreed to perform the time-critical removal action pursuant to an executed Administrative Order by Consent (AOC). Please see confidential enforcement addendum. The response actions will mitigate the hazardous conditions and remove the potential for worker exposure by installation of an engineered asphalt barrier, installation of a stormwater collection system, and establishment of institutional controls in the form of deed restrictions at the site. Results of recent sampling indicates that the remaining site soil risk levels prior to capping will be less than a total cancer risk of $1x10^{-4}$, a hazard index less than 1, and dioxin (2,3,7,8-TCDD) below 15 ppb TEQ.

Due to the operational requirements of this facility, the current site conditions, and the need to remove the potential for worker exposure, this removal action is classified as time-critical. The project will require approximately 90 on-site working days to complete. This site is currently not on the National Priorities List (NPL).

II. SITE CHARACTERISTICS

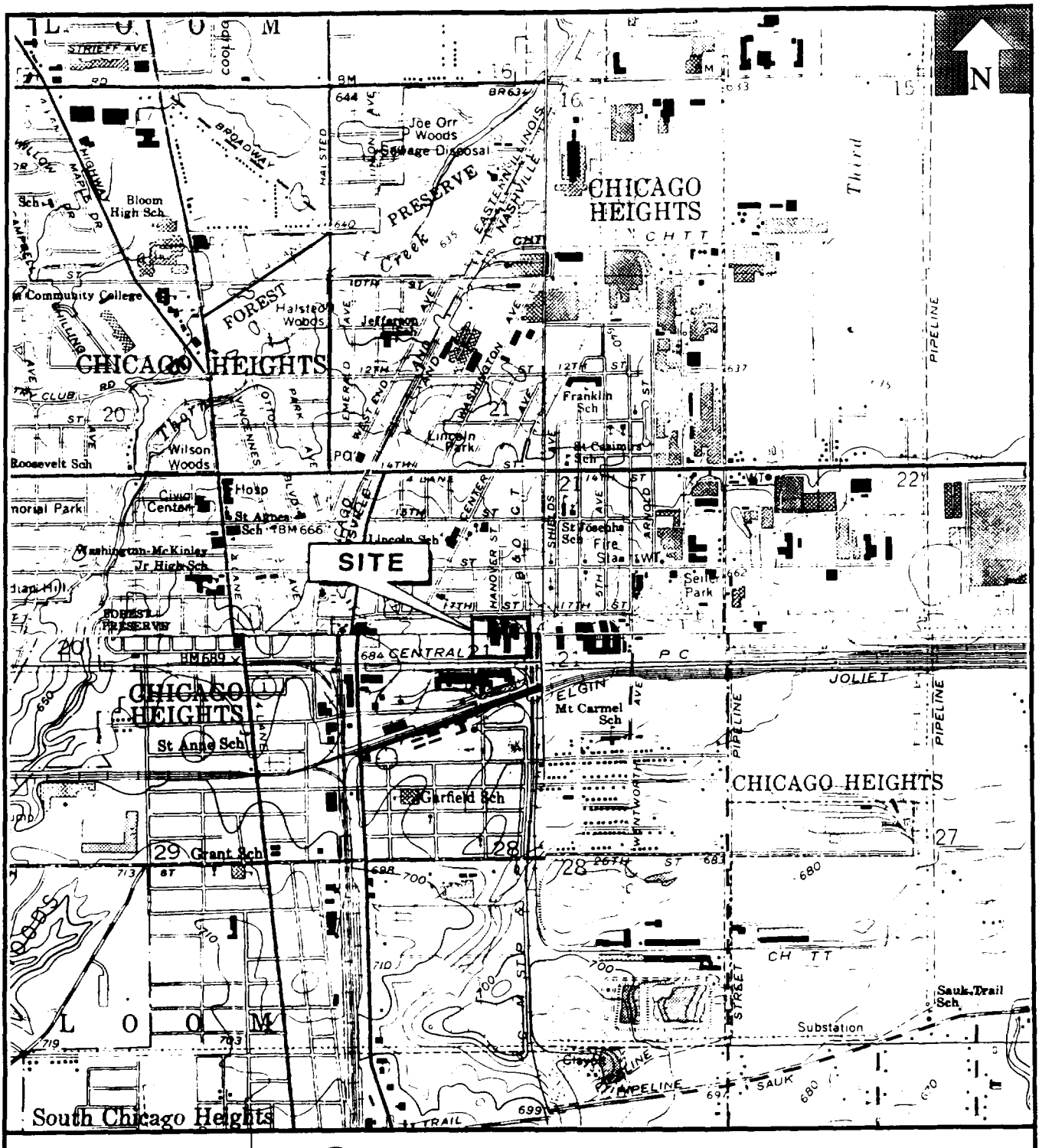
A. Site Description

CERCLIS ID# ILD059446153

The Riverdale Chemical Company is located at 220 East 17th Street, Chicago Heights, Cook County, Illinois. Coordinates for the northwest corner of the site are latitude 41°30'04" north by longitude 87°37'50" west (Figure 1). The site is bordered on the north by Chicago Heights Terminal Transfer Railroad tracks, East 17th Street and a residential neighborhood. Baltimore and Ohio Railroad tracks and a demolished roofing company property border the site on the east. Michigan Central Railroad tracks on a 15-foot-high embankment and an active steel processing factory border the site on the south. A 20-acre vacant lot, the previous location of Action Wrecking, borders the site on the west. Although zoned for industrial use, the Riverdale site is located in a mixed residential, industrial, and commercial area. Approximately 10,000 people living within 3 miles of the site are served by private wells. The site is located within an Environmental Justice block group (Figure 2).

The Environmental Justice (EJ) Analysis indicated that the site is located in census tract 8291, block group 4, with a population of 404. To meet the EJ concern criteria, the area within 1-mile of the site must have a population that is twice the state low income percentage and/or twice the state minority percentage. For an Illinois EJ site, the area must be at least 54% low-income and/or at least 50% minority. At this site, the low-income percentage is 95% and the minority percentage is 93%. Therefore this site does meet the region's EJ criteria based on demographics as identified in "Region 5 Interim Guidelines for Identifying and Addressing a Potential EJ Case, June 1998."

Topography on the relatively flat 10-acre Riverdale site slopes gently to the east and southeast. The southeastern portion of the site includes a wetland area of somewhat less than an acre and has no natural drainage and is assumed to be a perched system. Most water enters the wetland area via runoff from the southern portion of the site, from a ditch that flows eastward just outside the southern Riverdale site boundary, and from direct precipitation (Figure 3). As indicated by previous subsurface investigations and by current construction boring and excavating, most of the outdoor portions of the site are surfaced with crushed limestone 8 inches to more than 1 foot thick. Below that is mainly fill between 2 and 5 feet thick, which in turn is underlain by lake-bottom clay which may be dark brown and plastic near the surface, stiffening and lightening in color with depth. Area well logs indicate that up to 35 feet of this clay overlies the Silurian-aged Niagara Dolomite, which is considered to be the uppermost aquifer in the region.



Quadrangle Location

Illinois

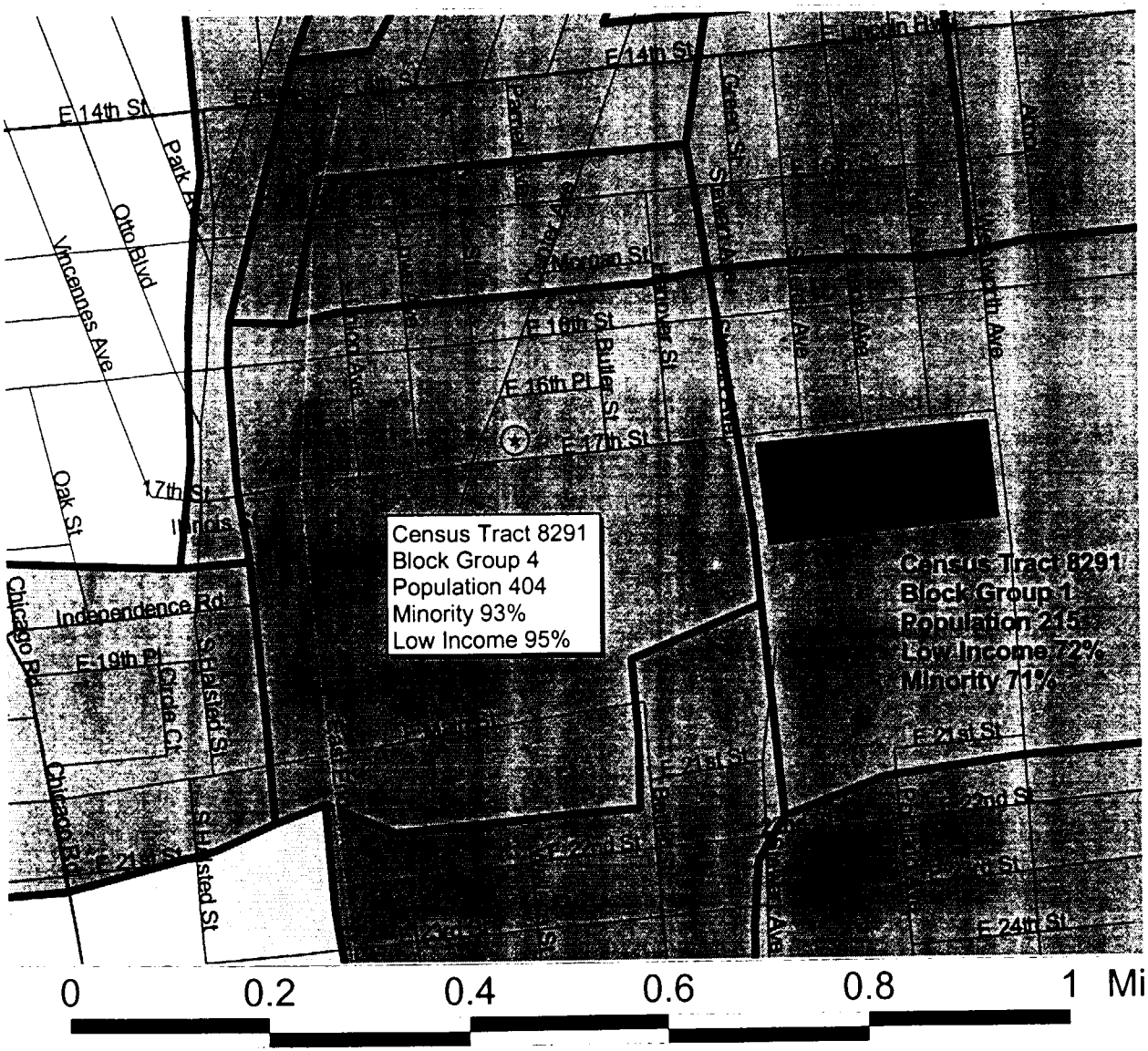
ecology and environment, inc.
Region 5 - Superfund Technical Assessment and Response Team
33 North Dearborn Street, Chicago, Illinois 60602

TITLE	Site Location Map	FIGURE 1
SITE	Riverdale Chemical	SCALE 1:24,000
CITY	Chicago Heights STATE Illinois	TDD S05-0008-002
SOURCE	USGS 7.5 Minute Series, Calumet City, Dyer, Harvey, and Steger, IL Quadrangles	DATE 1968; 1962; 1963; 1953 REVISED 1973

FIGURE 2

Region 5 Superfund EJ Analysis

Riverdale Chemical Co. Site Chicago Heights, IL



EJ Identification

Low Income and Minority Less than State Average

Low Income or Minority at or Greater than State Average

Low Income or Minority 2 Times or Greater than State Average
[meets Region 5 EJ Case criteria]

Site Location

Block Group Boundary

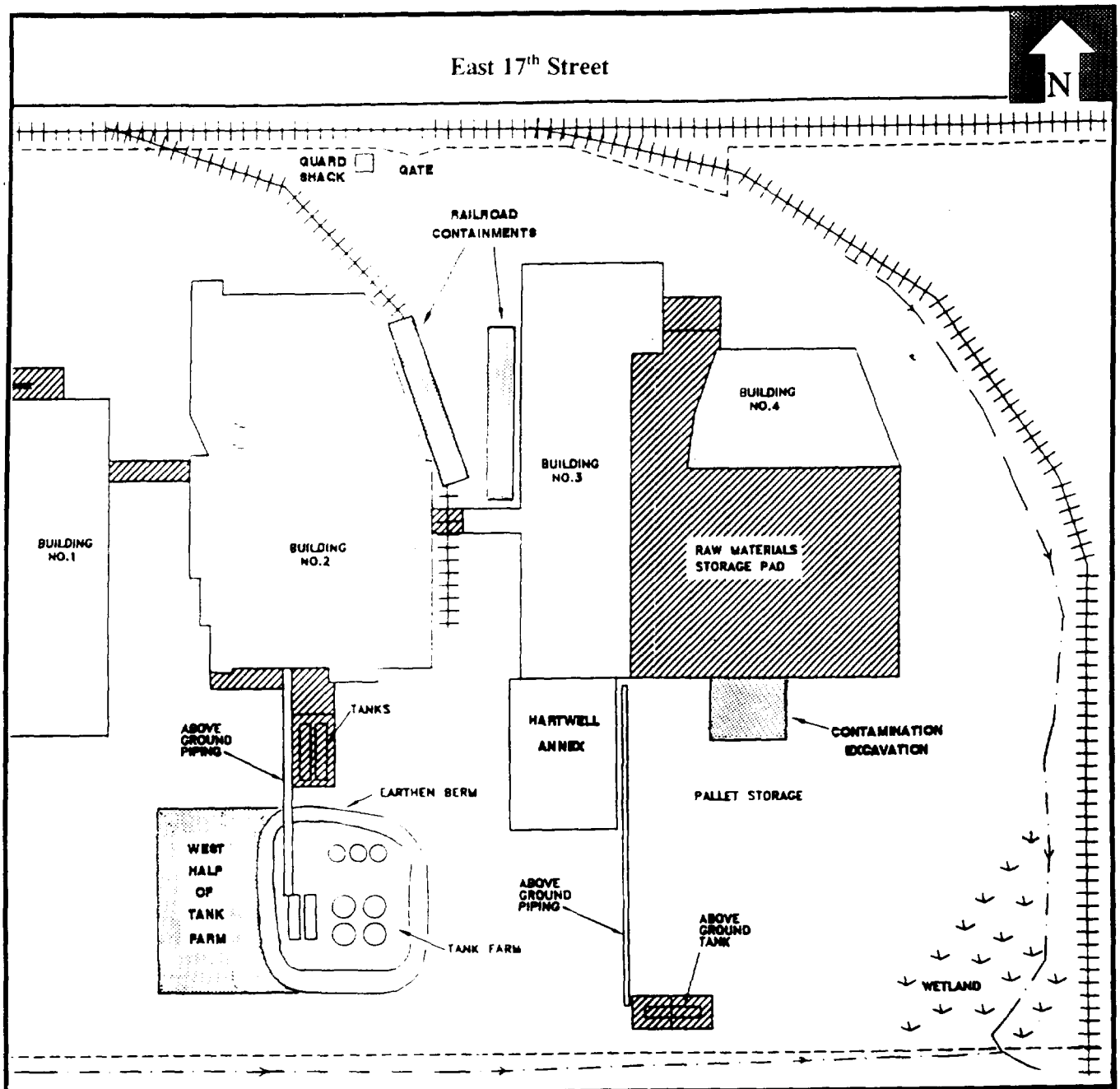
Region 5 EJ Case Criteria for Illinois
Minority: 50% or greater
Low Income: 54% or greater

N

U.S. EPA Region 5
Superfund GIS

Date of Map 7/17/01

Source of Map 1990 Census Database



Legend

- Site fence
- Railroad tracks
- Ditch, with flow direction
- Concrete
- Excavation

ecology and environment, inc.
Region 5 - Superfund Technical Assessment and Response Team
33 North Dearborn Street, Chicago, Illinois 60602

TITLE: Site Features Map		FIGURE: 3
SITE: Riverdale Chemical		SCALE: See scale bar
CITY: Chicago Heights	STATE: Illinois	TDD: S05-0008-002
SOURCE: Ecology and Environment, Inc.		DATE: October, 2000

There are four buildings and an aboveground storage tank (AST) area on site. Buildings No. 1 through No. 3 house chemical storage, formulation, and packing facilities, while Building No. 4 is used to store packaging supplies. The ASTs hold liquid chemicals used in formulation processes. Dry chemical components are currently stored outdoors on pallets, mainly in the southeast portion of the site. An active railroad spur enters the site from the northwest and ends between Buildings No. 2 and No. 3, where tank cars are unloaded. Another railroad spur crosses the northeast corner of the site, but then runs south along the east side of the wetland area to the steel plant located just south of the site.

B. Site History

Since purchasing the site in 1956, Riverdale has formulated various fungicide, herbicide, and insecticide products at the site, and currently formulates agricultural and lawn chemical products. Previous owners used the site for carriage building, brewing and warehousing. Constructed some time after April 1997, building No. 1 is located on a portion of the site known to have been impacted by chemical spillage. Soil excavated in the course of Building No. 1 construction was placed somewhere in the southeast portion of the site.

Riverdale site contamination first came to U.S. EPA attention in April 1984, when a Field Investigation Team (FIT) site assessment detected pesticides, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and dioxin in site surface soil samples, with dioxin concentrations up to 364 parts per billion (ppb). An Administrative Order by Consent between U.S. EPA and Riverdale called for an Interim Response (IR), followed by a Remedial Investigation (RI). Under the IR, Riverdale placed geofabric and a layer of crushed limestone over approximately 20,000 square feet of contaminated ground to prevent direct-contact and airborne exposure to hazardous substances. The RI, conducted in two phases between October 1985 and November 1986, detected widespread pesticide and dioxin contamination in surface soils ranging from 130 ppb for lindane to 1,000,000 ppb for chlordane. Dioxin was detected at an average concentration of 17.5 ppb and a maximum of 364 ppb. In the subsurface, approximately 0 to 3 feet below ground surface, pesticides were widely detected, including heptachlor epoxide to 160 ppb and dieldrin to 200,000 ppb, but dioxin was barely detected.

On July 2, 1992, lightning caused a fire that completely destroyed a 10,000 square foot warehouse containing various fungicide, herbicide, and insecticide products, including the active ingredients 2,4-D, Dicamba, 2,4-DP, MCPA, and MCPP. Although fire fighting efforts and management of the residue, including runoff water, were overseen by U.S. EPA and the Illinois Environmental Protection Agency (Illinois EPA) in cooperation with local agencies, much of the runoff presumably ended up in the wetland area at the southeast corner of the property. In response to concerns about contamination at the site a streamlined human health risk evaluation was performed as part of a draft EE/CA prepared by consultants for U.S. EPA. Potential exposure of general site workers and construction/utility workers to contaminants in site soils through dermal contact with, and incidental ingestion of soil resulting from hand-to-mouth contact was evaluated. The estimated cancer risks for general site workers and

In 1999, the Australian based Nufarm Chemical Company acquired Riverdale Chemical Company and began the process of upgrading the Riverdale facility. In August 2000, Riverdale began construction of upgrades to existing site structures to bring the Chicago Heights facility into compliance with U.S. Department of Agriculture (USDA) requirements for manufacturers of herbicide products. Because they were working under an expedited schedule required by USDA, Riverdale entered into an Administrative Order on Consent (AOC) with U.S. EPA to address the contaminated site soils which would need to be excavated and disposed of during site upgrades. The facility upgrades included building a raw material storage warehouse, replacing a liquid storage facility, and expanding the railroad unloading area. These construction projects necessitated the excavation and disposal of material that had been shown in previous studies to pose a potential increased cancer risk to general site and construction workers.

C. Removal Actions to Date

The site work which was performed by Riverdale under the AOC included excavation, confirmatory sampling and disposal. The work was performed in two phases with the first occurring from July - November 2000. During the first phase of removal work, a total of 2,264.29 tons of excavated soil from the railroad unloading area and 1,613.30 tons of excavated soil from the raw materials warehouse were disposed of as special waste at the Laraway Landfill in Laraway, Illinois. The soil was considered special waste because of the suspected presence of kerosene which was widely used at the site as a carrier in the processing of herbicides. In the liquid storage area, 45 samples from 35 locations were collected and analyzed for the presence of selected pesticides. Excavation within the liquid storage area of approximately 100 feet by 50 feet was performed to a depth of 5 feet. Confirmational samples were collected at all excavation areas. This excavation within the liquid storage area produced 1,214.97 tons of special waste that was shipped to Laraway Landfill for disposal and 3,031 tons of special waste that was shipped to Envirotech Landfill in Morris, Illinois for disposal. Twelve samples at six locations were collected within the utility corridor and five samples at three locations were collected within the Hartwell Building Expansion area. All of these samples were analyzed for pesticides and were collected to confirm that the soils in these areas had not been impacted by any historical site activities.

The second phase of the removal work included the excavation of contaminated soils, disposal and confirmatory sampling from 15 "hot spots" around the property. Additionally, approximately 6 inches of surface soil was excavated from a small wetland in the southeast portion of the site. Soil samples were collected at 89 locations in order to determine areas of excavation, provide modeling scenario checks and to confirm remaining risk levels for construction workers. A total of 958 tons of soil was excavated and shipped to the CID Landfill in Chicago, Illinois. The confirmatory sampling indicated that after excavation of the fifteen discrete areas, the remaining soil risk levels at the site are less than a total cancer risk of $1x10^{-4}$, a hazard index less than 1, and dioxin below 15 ppb TEQ. These removal actions reduced the cancer risk and hazard index for construction workers to acceptable levels, leaving the remaining site risk applicable only to industrial workers. Addressing this remaining industrial worker risk will be accomplished

through the installation of an engineered asphalt cap. Because of the few remaining locations having dioxin concentrations greater than 5 ppb, risk calculations indicated that removal of additional soils to attain a dioxin TEQ below 5 ppb does not provide a significant or substantial reduction in overall risk to site industrial or construction workers. Additionally, the installation of an engineered asphalt barrier will remove the potential exposure pathway. As a result of the calculated additional cost for further sampling, excavation and disposal to attain an additional negligible environmental and human health benefit, and the protectiveness inherent in the asphalt cap, the dioxin clean up level of 15 ppb TEQ was determined to be appropriate. The U.S. EPA Office of Emergency and Remedial Response in Washington, D.C. was consulted and concurred that the dioxin clean up level of 15 ppb TEQ is in accordance with the Interim Dioxin Policy of 1998. Concurrence was received via telephone and electronic mail on August 1, 2001.

D. Other Actions to Date

In August 2000, U.S. EPA and Riverdale began negotiations of the AOC. On November 16, 2000, the AOC was signed by the Region V Superfund Division Director. During this period, the scope of work was established and a work plan and health and safety plan were approved. All removal activities conducted in 2000 and 2001 were conducted under the approved work plans and health and safety plan and were performed under U.S. EPA oversight.

U.S. EPA and Riverdale are currently in negotiations on a second AOC which will incorporate the installation of an engineered asphalt barrier, installation of a stormwater collection system, and establishment of institutional controls in the form of deed restrictions. A work plan for these activities has been received by U.S. EPA.

III. THREAT TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Conditions present at the Riverdale Chemical Site constitute a threat to public health, or the environment based upon the factors set forth in 40 CFR Section 300.415(b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), include, but are not limited to, the following:

- **Actual or potential exposure to nearby populations, animals, or the food chain from hazardous substances or pollutants or contaminants.**

This factor is present at the Site due to the existence of pesticide and dioxin contaminated soil which industrial workers could potentially come in contact with during routine site activities. Even after the recently conducted removal activities, reduced levels of contamination remain in certain areas of the site which risk calculations indicate could be of concern for industrial workers. Installation of the engineered asphalt barrier should remove this potential exposure pathway. Additionally, due to the increased truck traffic at the facility the crushed limestone barrier is no longer practically or environmentally protective. Changing weather conditions

workers. Installation of the engineered asphalt barrier should remove this potential exposure pathway. Additionally, due to the increased truck traffic at the facility the crushed limestone barrier is no longer practically or environmentally protective. Changing weather conditions cause the limestone barrier to create either extremely dusty or muddy conditions, thereby increasing the potential for surficial exposure of contaminated soil and transport to nearby populations. The installation and maintenance of the asphalt barrier will eradicate the potential for these problems to occur in the future.

- **High levels of hazardous substances or pollutants or contaminants in soils largely near the surface, that may migrate.**

This factor is present at the Site due to the existence of pesticide and dioxin contaminated soil. Industrial workers engaging in routine site activities could come in contact with the contaminated soil. The site is currently covered with a crushed limestone layer that due to heavy truck traffic becomes compressed and could potentially mix with the underlying contaminated soil if not well maintained. As a result of this temporary limestone layer, in the hot, dry summer months the site workers are exposed to dusty conditions which may, if not well maintained, transport contamination off site. The installation of an engineered asphalt barrier will alleviate the possibility of contaminant migration and will prevent industrial workers from possible exposure.

- **The availability of other appropriate Federal or State response mechanisms to respond to the release.**

This factor supports the actions which will be required by this Order at the Site because the Illinois Environmental Protection Agency does not have the necessary resources to mitigate threats to public health, welfare, and the environment posed by the pesticide and dioxin contamination at the Riverdale Site. Costs of all the work required by the two AOCs is estimated to be approximately $3 million.

IV. ENDANGERMENT DETERMINATION

Given the site conditions, the nature of the hazardous substances on site, and the potential exposure pathway to nearby populations described in Sections II and III above, actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response actions selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

Pursuant to the accepted Work Plan, the PRP intends to undertake the following actions to mitigate threats posed by the presence of hazardous substances at the Riverdale Chemical Site:

- Subgrade preparation of the site.
- Placement of crushed aggregate base course.
- Placement of bituminous asphalt course.
- Installation of new storm water retention basin in the northwest portion of the site with tie in to city storm sewer.
- Installation of a retention pond in the southeast portion of the site and tie in to city storm sewer.
- Pavement and base course testing will be conducted according to the American Society for Testing and Materials (ASTM) and /or American Association of State Highways and Transportation Officials (AASHTO) standards.
- Conduct all removal activities under U.S. EPA previously approved Health and Safety Plan.
- Description of the overall management strategy for performing the installation including, reporting of results and conclusions for U.S. EPA review and approval.
- Documentation of the qualifications, responsibility, and authority of all organizations involved with the implementation of the remaining removal activities.
- Following completion of on-site removal activities, institutional controls in the form of deed restrictions will be placed on the property. The restrictions will also include information identifying soil contamination, potential contaminant concentrations and associated exposure risk that are present after the remaining removal work is complete.

The response actions described in this Memorandum directly address actual or threatened releases of hazardous substances, pollutants, or contaminants at the facility which may pose an imminent and substantial endangerment to public health and the environment. These response actions do not impose a burden on affected property disproportionate to the extent to which that property contributes to the conditions being addressed.

All applicable or relevant and appropriate requirements (ARARs) will be complied with to the extent practicable. Illinois EPA was verbally requested on July 26, 2001, to identify ARARs to

U.S. EPA for this removal action. Such state ARARs which are identified in a timely manner will be complied with to the extent practicable.

The estimated cost to the PRP for the activities described in this Action Memo are $1.1 million. Removal activities are expected to take 90 on site working days. The full cost of all removal activities conducted in both AOCs is estimated to cost $3 million.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Delayed action or failure to act may result in the likelihood of a release of hazardous waste which could contribute and ultimately lead to increased risks to public health and the environment. Industrial workers conducting routine activities at the site could come into contact with pesticide and dioxin contaminated soil. Increased truck traffic could also cause contaminants to migrate through the crushed limestone barrier and be transported to the nearby community during hot, dry weather.

VII. OUTSTANDING POLICY ISSUES

The U.S. EPA Office of Emergency and Remedial Response has indicated that a clean up level of 15 ppb TEQ for this site is in accordance with the Interim Dioxin Policy of 1998. It should be noted that in the event that the ongoing dioxin reassessment provides a different action level based on revised toxicity, U.S. EPA would reassess its activities at previous dioxin sites.

In addition, the selection of an engineered asphalt barrier and the previous excavation and sampling activities which have taken place at the site under the oversight of the removal program have been, and will continue to be, fully consistent with previous actions taken by the remedial program at the site.

VIII. ENFORCEMENT

For administrative purposes, information concerning confidential enforcement strategy for this site is contained in an Enforcement Confidential Addendum.

IX. RECOMMENDATION

This decision document represents the selected removal action for the Riverdale Chemical Site located in Chicago Heights, Cook County, Illinois developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This decision is based upon the Administrative Record for this site. Conditions at the site meet the NCP Section 300.415(b)(2) criteria for a removal action. You may indicate your decision by signing below.

APPROVE: _____ DATE: 8/17/01

William E. Muno, Director
Superfund Division

DISAPPROVE: _____ DATE: _____

William E. Muno, Director
Superfund Division

Attachments:

1. Enforcement Confidential Addendum
2. Administrative Record

cc: C. Stanton, U.S. EPA HQ, 5202G
M. Chezik, U.S. Department of Interior, w/o Enf. Addendum
M. Wagner, Illinois EPA, w/o Enf. Addendum
T. Krause, Illinois EPA, w/o Enf. Addendum
B. Everetts, Illinois EPA, w/o Enf. Addendum
R. Cipriano, Illinois EPA, w/o Enf. Addendum
S. Davis, Illinois DNR, w/o Enf. Addendum
A. Martin, Illinois Department of Public Health, w/o Enf. Addendum

PAGE 10

BCC PAGE

HAS BEEN REDACTED

NOT RELEVANT TO THE SELECTION OF THE REMOVAL ACTION

ATTACHMENT 1

ENFORCEMENT CONFIDENTIAL ADDENDUM
1 PAGE

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NOT RELEVANT TO THE SELECTION OF THE REMOVAL ACTION

AK

ATTACHMENT 2

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL ACTION

ADMINISTRATIVE RECORD
FOR
RIVERDALE-NUFARM CHEMICAL COMPANY
CHICAGO HEIGHTS, COOK COUNTY, ILLINOIS

ORIGINAL
AUGUST 2, 2001

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	03/00/00	Ecology & Environment, Inc.	U.S. EPA	Engineering Evaluation/ Cost Analysis Report for the Riverdale Chemical Company Site	211
2	07/28/00	Maradkel, B., U.S. EPA	Ohl, M., U.S. EPA	Memorandum re: Technical Review of the Site Health and Safety Plan for the Riverdale Chemical Company Site	1
3	12/15/00	Ecology and Environment, Inc.	U.S. EPA	Letter Report for the Riverdale Chemical Site	55
4	02/00/01	RMT, Inc.	U.S. EPA	Phase I Removal Action Report for the Riverdale Chemical Company Site	211
5	02/00/01	RMT, Inc.	U.S. EPA	Phase I Removal Action Report: Appendix C (Risk Calculations) for the Riverdale Chemical Company Site	194
6	06/00/01	RMT, Inc.	U.S. EPA	Phase I Removal Action Report Addendum: Off-Site Drainage Ditch Sampling for the Riverdale Chemical Company Site	49
7	06/00/01	RMT, Inc.	U.S. EPA	Phase I Removal Action Report Addendum: Proposed Excavation Areas for the Riverdale Chemical Company Site	215
8	06/00/01	RMT, Inc.	U.S. EPA	Phase I Removal Action Report Addendum: Tech-Memorandum on Sampling Activities for the River-Chemical Company Site	242

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
9	06/04/01	Gibson, C., Tetra Tech EM, Inc.	Bolattino, C., U.S. EPA	Letter Report re: Collection of Split Soil Samples at the Riverdale Chemical Site	17
10	07/00/01	RMT, Inc.	U.S. EPA	Phase II Removal Action Work Plan for the Riverdale Chemical Company Site	172
11	07/13/01	Gibson, C., Tetra Tech EM, Inc.	Bolattino, C., U.S. EPA	Letter Report re: Removal of Contaminated Soils at the Riverdale Chemical Site	16
12	00/00/00	Bolattino, C., U.S. EPA	Muno, W., U.S. EPA	Action Memorandum: Determination of Threat to Public Health and the Environment at the Riverdale-Nufarm Chemical Company Site **(PENDING)**	